

What is claimed is:

508 A₂ 1. An olefin isomerization process which comprises
contacting a fluid feed stream containing an olefin with an
activated basic metal oxide catalyst under olefin
5 isomerization conditions, the activated catalyst having an
initial activity for olefin isomerization and containing an
amount of activity-affecting impurity which does not exceed
that amount which will result in a reduction of the initial
catalyst activity by about 0.075 percent conversion loss per
10 hour as measured by the isomerization of 1-butene to 2-butene.

2. The olefin isomerization process of claim 1 wherein
the basic metal oxide catalyst is selected from the group
consisting of magnesium oxide, calcium oxide, barium oxide,
15 lithium oxide and combinations thereof.

3. The olefin isomerization process of claim 1 wherein
the catalyst is magnesium oxide.

20 4. The olefin isomerization process of claim 1 wherein
the activity-affecting impurity in the basic metal oxide
catalyst is, or contains, sulfur, phosphorus, at least one
transition metal or a combination thereof.

5. The olefin isomerization process of claim 4 wherein the at least one transition metal is iron, chromium, cobalt, nickel, or a combination thereof.

5 6. The olefin isomerization process of claim 1 wherein the catalyst contains no more than about 2000 ppm of sulfur and/or phosphorous and no more than about 500 ppm of one or more transition metals.

2
A cont
10 7. The olefin isomerization process of claim 1 wherein the catalyst contains no more than about 1000 ppm of sulfur and/or phosphorous and no more than about 400 ppm of one or more transition metals.

15 8. The olefin isomerization process of claim 1 wherein the catalyst contains no more than about 75 ppm of sulfur and/or phosphorous and no more than about 330 ppm of one or more transition metals.

20 9. The olefin isomerization process of claim 1 wherein the fluid feed stream comprises an olefin possessing an internal double bond, at least some of the olefin possessing an internal double bond being converted to a corresponding terminal olefin.

25

10. The olefin isomerization process of claim 9 wherein the olefin possessing an internal bond comprises 2-hexene and/or 3-hexene and the corresponding terminal olefin is 1-hexene.

5

11. The olefin isomerization process of claim 9 wherein the olefin possessing an internal double bond is 2-butene and the corresponding terminal olefin is 1-butene.

12. The olefin isomerization process of claim 10 wherein the conversion of 2-butene to 1-butene is from about 20 percent to about 30 percent.

13. The olefin isomerization process of claim 1 wherein the olefin isomerization conditions include a temperature of at least about 300°C.

14. The olefin isomerization process of claim 1 wherein the olefin isomerization conditions include a temperature of from about 340°C to about 500°C.

15. The olefin isomerization process of claim 1 wherein the basic metal oxide catalyst is selected from the group consisting of magnesium oxide, calcium oxide, barium oxide, lithium oxide and combinations thereof, and the activity-

affecting impurity includes sulfur, phosphorus, at least one transition metal or a combination thereof.

16. The olefin isomerization process of claim 15 wherein the at least one transition metal is iron, chromium, cobalt, nickel, or a combination thereof.

17. The olefin isomerization process of claim 3 wherein the catalyst contains no more than about 2000 ppm of sulfur and/or phosphorous and no more than about 500 ppm of one or more transition metals.

18. The olefin isomerization process of claim 3 wherein the catalyst contains no more than about 1000 ppm of sulfur and/or phosphorous and no more than about 400 ppm of one or more transition metals.

19. The olefin isomerization process of claim 3 wherein the catalyst contains no more than about 75 ppm of sulfur and/or phosphorous and no more than about 330 ppm of one or more transition metals.

20. A process for isomerizing C₄ olefin derived from a mixed C₄ stream comprising the steps of:

a) providing a C₄ stream containing butadiene, 1-butene, 2-butene, and isobutylene;

b) selectively hydrogenating the C₄ stream in the presence of a hydrogenation catalyst and hydrogen whereby the butadiene is selectively hydrogenated;

c) simultaneously hydroisomerizing and fractionating the feed to convert 1-butene to 2-butene and to remove the isobutylene by fractionation; and

d) contacting the C₄ stream with an activated basic metal oxide catalyst under olefin isomerization conditions, the activated catalyst having an initial activity for olefin isomerization and containing an amount of activity-affecting impurity which does not exceed that amount which will result in a reduction of the initial catalyst activity by about 0.075 percent conversion loss per hour.

21. The process of claim 20 wherein the basic metal oxide catalyst contains no more than about 2000 ppm of sulfur and/or phosphorous and no more than about 500 ppm of one or more transition metals.

22. The process of claim 20 wherein the basic metal oxide catalyst contains no more than about 1000 ppm of sulfur and/or phosphorous and no more than about 400 ppm of one or more transition metals.

23. The process of claim 20 wherein the basic metal oxide catalyst contains no more than about 75 ppm of sulfur and/or

A²₆₋₉

5

1976	1977	1978	1979	1980
1981	1982	1983	1984	1985
1986	1987	1988	1989	1990
1991	1992	1993	1994	1995
1996	1997	1998	1999	2000
2001	2002	2003	2004	2005
2006	2007	2008	2009	2010
2011	2012	2013	2014	2015
2016	2017	2018	2019	2020
2021	2022	2023	2024	2025
2026	2027	2028	2029	2030
2031	2032	2033	2034	2035
2036	2037	2038	2039	2040
2041	2042	2043	2044	2045
2046	2047	2048	2049	2050
2051	2052	2053	2054	2055
2056	2057	2058	2059	2060
2061	2062	2063	2064	2065
2066	2067	2068	2069	2070
2071	2072	2073	2074	2075
2076	2077	2078	2079	2080
2081	2082	2083	2084	2085
2086	2087	2088	2089	2090
2091	2092	2093	2094	2095
2096	2097	2098	2099	2100
2101	2102	2103	2104	2105
2106	2107	2108	2109	2110
2111	2112	2113	2114	2115
2116	2117	2118	2119	2120
2121	2122	2123	2124	2125
2126	2127	2128	2129	2130
2131	2132	2133	2134	2135
2136	2137	2138	2139	2140
2141	2142	2143	2144	2145
2146	2147	2148	2149	2150
2151	2152	2153	2154	2155
2156	2157	2158	2159	2160
2161	2162	2163	2164	2165
2166	2167	2168	2169	2170
2171	2172	2173	2174	2175
2176	2177	2178	2179	2180
2181	2182	2183	2184	2185
2186	2187	2188	2189	2190
2191	2192	2193	2194	2195
2196	2197	2198	2199	2200
2201	2202	2203	2204	2205
2206	2207	2208	2209	2210
2211	2212	2213	2214	2215
2216	2217	2218	2219	2220
2221	2222	2223	2224	2225
2226	2227	2228	2229	2230
2231	2232	2233	2234	2235
2236	2237	2238	2239	2240
2241	2242	2243	2244	2245
2246	2247	2248	2249	2250
2251	2252	2253	2254	2255
2256	2257	2258	2259	2260
2261	2262	2263	2264	2265
2266	2267	2268	2269	2270
2271	2272	2273	2274	2275
2276	2277	2278	2279	2280
2281	2282	2283	2284	2285
2286	2287	2288	2289	2290
2291	2292	2293	2294	2295
2296	2297	2298	2299	2300
2301	2302	2303	2304	2305
2306	2307	2308	2309	2310
2311	2312	2313	2314	2315
2316	2317	2318	2319	2320
2321	2322	2323	2324	2325
2326	2327	2328	2329	2330
2331	2332	2333	2334	2335
2336	2337	2338	2339	2340
2341	2342	2343	2344	2345
2346	2347	2348	2349	2350
2351	2352	2353	2354	2355
2356	2357	2358	2359	2360
2361	2362	2363	2364	2365
2366	2367	2368	2369	2370
2371	2372	2373	2374	2375
2376	2377	2378	2379	2380
2381	2382	2383	2384	